

# **22622VIC Diploma of Product Design**

**Version 1.1 November 2024**

**This course has been accredited under Part 4.4 of the  
*Education and Training Reform Act 2006.***

**Accredited for the period: 1 July 2023 to 30 June 2028**



Jobs, Skills,  
Industry  
and Regions

## 22622VIC Diploma of Product Design

Version History	Comments	Date
Version 1.1	Copyright owner contact information updated in Section A.	November 2024
Version 1.0	Initial release approved to commence from 1 July 2023.	25 May 2023

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## Section A – Copyright and course classification information

<p><b>1. Copyright owner of the course</b></p>	<p>Copyright of this material is reserved to the Crown in the right of the State of Victoria on behalf of the Department of Jobs, Skills, Industries and Regions (DJSIR) Victoria.</p> <p>© State of Victoria (DJSIR) 2023</p>
<p><b>2. Address</b></p>	<p>Deputy CEO Victorian Skills Authority Department of Jobs, Skills, Industry and Regions (DJSIR) GPO Box 4509 MELBOURNE VIC 3001</p> <p><b>Organisational contact</b> Manager, Training and Learning Products Unit Engagement Branch Victorian Skills Authority Department of Jobs, Skills, Industry and Regions (DJSIR) Telephone: 13 18 23 Email: <a href="mailto:course.enquiry@djsir.vic.gov.au">course.enquiry@djsir.vic.gov.au</a></p> <p><b>Day-to-day contact</b> Human Services Curriculum Maintenance Manager Swinburne University of Technology PO Box 218 Hawthorn, VIC 3122 Telephone: (03) 9214 5034 / 9214 8501 Email: <a href="mailto:cmmhs@swin.edu.au">cmmhs@swin.edu.au</a></p>
<p><b>3. Type of submission</b></p>	<p>This submission is for re-accreditation of <i>22446VIC Diploma of Product Design</i></p>
<p><b>4. Copyright acknowledgement</b></p>	<p>The following units of competency:</p> <ul style="list-style-type: none"> <li>• BSBCMM411 Make presentations</li> <li>• BSBCRT413 Collaborate in creative processes</li> <li>• BSBCRT512 Originate and develop concepts</li> <li>• BSBESB401 Research and develop business plans</li> <li>• BSBLEG525 Apply legal principles in intellectual property law matters</li> <li>• BSBMKG434 Promote products and services</li> <li>• BSBPEF402 Develop personal work priorities</li> <li>• BSBPMG421 Apply project time management techniques</li> <li>• BSBPMG422 Apply project quality management techniques</li> <li>• BSBPMG430 Undertake project work</li> <li>• BSBPMG530 Manage project Scope</li> </ul>



- BSBTEC201 Use business software applications

have been imported from the **BSB Business Services Training Package** administered by the Commonwealth of Australia.  
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The following units of competency:

- CUAACD311 Produce drawings to communicate ideas
- CUAACD312 Produce computer- aided drawings
- CUAACD313 Produce technical drawings
- CUAACD314 Make scale models
- CUAACD508 Refine model making skills
- CUAACD531 Refine drawing and other visual representation tools
- CUAANM313 Create 3D digital models
- CUAANM411 Create advanced 3D digital models
- CUADES302 Explore and apply the creative design process to 2D forms
- CUADES303 Explore and apply the creative design process to 3D forms
- CUADES422 Research and apply techniques in product design
- CUADES512 Establish, negotiate and refine a design brief
- CUADES601 Design innovative products
- CUADIG415 Produce innovative digital images
- CUAIND412 Provide freelance services
- CUAPPR615 Evolve ideas for professional creative work
- CUARES503 Analyse cultural history and theory
- CUAWHS312 Apply work health and safety practices

have been imported from the **CUA Creative Arts and Culture Training Package** administered by the Commonwealth of Australia.  
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The following unit of competency:

- ICPPTD302 Set up and produce 3D prints

has been imported from the **ICP Printing and Graphic Arts Training Package** administered by the Commonwealth of Australia.  
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The following units of competency:

- MSFFDM4019 Research and select manufacturing technologies
- MSFFDM5009 Generate and transfer complex computer-aided drawings and specifications

	<ul style="list-style-type: none"> <li>MSFFDM5012 Research, test and apply materials and technologies for design projects</li> </ul> <p>have been imported from the <b>MSF Furnishing Training Package</b> administered by the Commonwealth of Australia. © Commonwealth of Australia</p> <p>The following units of competency:</p> <ul style="list-style-type: none"> <li>MSS015044 Design sustainable product or process</li> <li>MSS405038 Optimise process costs</li> </ul> <p>have been imported from the <b>MSS Sustainability Training Package</b> administered by the Commonwealth of Australia. © Commonwealth of Australia</p> <p>The following unit of competency:</p> <ul style="list-style-type: none"> <li>VU22340 Use 3D printing to create products</li> </ul> <p>has been imported from <b>22470VIC Certificate II in Engineering Studies</b>. Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions) 2018.</p> <p>The following unit of competency:</p> <ul style="list-style-type: none"> <li>VU23162 Use additive manufacturing technologies to produce an industry specified component</li> </ul> <p>has been imported from <b>22588VIC Certificate III in Enabling Technologies</b>. Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions) 2022.</p>
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Section A – Copyright and course classification information

	Copies of this publication can be downloaded free of charge from the <a href="#">Victorian government website</a> .
<b>6. Course accrediting body</b>	Victorian Registration and Qualifications Authority
<b>7. AVETMISS information</b>	<p><b>ANZSCO code – 6 digit</b> 232312 Industrial Designer, Alternative Title: Product Designer</p> <p><b>ASCED Code – 4 digit</b> 0301 Manufacturing Engineering and Technology</p> <p><b>National course code</b> 22622VIC</p>
<b>8. Period of accreditation</b>	1 July 2023 - 30 June 2028





## Section B – Course information

<b>1. Nomenclature</b>	<b>Standard 4.1 and 5.8 AQTF 2021 Standards for Accredited Courses</b>
1.1 Name of the qualification	22622VIC Diploma of Product Design
1.2 Nominal duration of the course	1615 – 1830 hours
<b>2. Vocational or educational outcomes</b>	<b>Standard 5.1 AQTF 2021 Standards for Accredited Courses</b>
2.1 Outcome(s) of the course	<p>Successful completion of this course provides graduates with the skills and knowledge to design and develop products and product ranges from client brief in order to produce a product model, prototype or proof of concept of the design.</p> <p>This includes the ability to:</p> <ul style="list-style-type: none"> <li>• use drawings, 3D models and computer-aided design to express ideas and communicate concepts</li> <li>• articulate, present and debate ideas with team, management and/or clients</li> <li>• establish and refine design briefs for products</li> <li>• develop innovative design solutions</li> <li>• analyse and research consumer behaviour and markets</li> <li>• use 3D printing in product design</li> <li>• collaborate with others and plan the design process</li> <li>• apply work health and safety (WHS) requirements to product design</li> <li>• meet deadlines and work within budgets.</li> </ul> <p>Graduates of this course may seek employment in entry-level product design roles as part of a small or large design companies or as an independent designer. As a product designer, individuals may work as part of design teams in a consultancy environment or for manufacturing organisations. Many product designers also take on freelance work.</p>
2.2 Course description	<p>Successful completion of this course provides graduates with the skills and knowledge to design and develop products and product ranges from client brief in order to produce a product model, prototype or proof of concept of the design.</p> <p>In this role, product designers develop designs with colleagues and clients, as well as working closely and collaboratively with other professionals and skilled practitioners. They use drawings, 3-D models and computer designs to express their ideas. They have</p>

	underpinning knowledge in technology, production methods and materials, and can meet deadlines and work within budgets.
<b>3. Development of the course</b>	<b>Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses</b>
<b>3.1 Industry, education, legislative, enterprise or community needs</b>	<p><b>Industry needs of Victoria</b></p> <p>The design sector continues to be of major importance to Victoria’s economy. As outlined in Creative Victoria’s 2019 report <a href="#">‘Victoria’s Design Capacities, Performance &amp; Business Use of Design’</a>:</p> <p><i>“Victorian design consultancies earn revenue of \$6.3 billion annually, growing a total of 26% from \$5.0 billion in 2015. This equates to an annual compound growth rate of almost 6%, since 2015. This is a somewhat faster growth rate than the general economy, which during that same time has had an annual growth rate, based on nominal Gross State Product (GSP) of between 4% to 5.5%.”<sup>1</sup></i></p> <p>The report notes the increased number of design consultancies operating in Victoria; highlighting that <i>“the industrial sector and the artisan sector have each added about 25% more consultancies, with these sectors having the most prolific growth in percentage terms”</i> since 2015 than other design sectors.<sup>2</sup></p> <p>In recognition of this, the Victorian Government launched <a href="#">Creative State 2025</a>, which builds on the achievements of the landmark 2016-2020 <i>Creative State strategy</i> and is backed by a record \$288 million investment over four years from 2021.<sup>3</sup> The strategy aims to engender stability, create opportunity and stimulate growth for Victoria’s creative workers, businesses and industries and positions Victoria’s creative industries as a catalyst for the state’s future economic prosperity and social wellbeing.</p> <p>A key action of this strategy is to:</p> <p><i>“Position Victoria as a design leader and promote the use of design by extending support for design capability, and building both public awareness and engagement with design.”<sup>4</sup></i></p> <p>According to the Victorian Skills Authority’s (VSA) <a href="#">Employment Forecast Dashboard</a> data which underpins the Victorian Skills Plan, there was an estimated 6,601 individuals employed in Victoria in 2022 under the ANZCO occupation group 2323 <i>Fashion, Industrial and</i></p>

<sup>1</sup> Wallis Market & Social Research. Report prepared for Creative Victoria - Department of Jobs, Precincts and Regions (November 2019), [Victoria’s Design Capacities, Performance & Business Use of Design](#), pg. 6.

<sup>2</sup> Ibid. pg. 20.

<sup>3</sup> Creative Victoria (2021), [Creative State 2025: Placing Creativity at The Heart of Victoria’s Recovery and Prosperity](#)

<sup>4</sup> Ibid. pg. 15.

*Jewellery Designers*. The VSA data shows an expected employment growth rate of 5.4% between 2022-2025.<sup>5</sup>

National data from Jobs and Skills Australia (JSA) for this same ANZCO occupation grouping (2323) shows 12,700 individuals employed across Australia and projects very strong future growth of 28.4% over 5 years from 2021 to 2026.<sup>6</sup>

JSA data for ANZCO occupation 232312 *Industrial Designers* does not show employment projections (this is only provided for 4-digit ANZCO level), however it does show there are 3,400 individuals employed across Australia and that 41.8% (approx. 1,421) are employed in Victoria.<sup>7</sup>

The [Australia's STEM Workforce](#) report published in 2020 outlines how the impacts of bushfires and COVID-19 have shown the value of an educated STEM workforce in developing solutions for response, recovery and long-term resilience. The report states that:

*“Australians who have studied science, technology, engineering and mathematics (STEM) are helping to solve the problems of the future—meeting electricity demand and generation needs, adapting to the changing climate, integrating AI into society and optimising healthcare for ageing populations.”<sup>8</sup>*

The current market for this Product Design qualification is favourable. Recent examples of 3D printing face shields and respirator pipe design has helped in the fight against COVID 19. This small but important example demonstrates there is an immediate and ongoing need for creative problem-solving skills developed as a Product Designer.

The skills and knowledge for creative problem-solving, multidisciplinary way of thinking, design thinking and developing innovative products which is gained through the *Diploma of Product Design* supports Australia's innovation imperative, as outlined by Innovation and Science Australia in their 2017 report [Australia 2030: Prosperity through Innovation](#). This report outlines that innovation is essential to create more economic and social opportunities for Australians and will also be critical to the employment market in Australia in 2030.<sup>9</sup>

## Course background

<sup>5</sup> Victorian Skills Authority (2022), [Employment Forecast Dashboard](#), data accessed December 2022

<sup>6</sup> Jobs and Skills Australia - Labour Market Insights, [Occupation Profile: 2323 Fashion, Industrial and Jewellery Designers](#), data accessed December 2022

<sup>7</sup> Jobs and Skills Australia - Labour Market Insights, [Occupation Profile: 232312 Industrial Designers](#), data accessed December 2022

<sup>8</sup> Office of the Chief Scientist (2020), [Australia's STEM Workforce](#), pg. iii.

<sup>9</sup> Innovation and Science Australia (2017), [Australia 2030: Prosperity Through Innovation](#).

Initially accredited in 1998 as *12864VIC Diploma of Arts (Product Design)*, this course is now entering its fifth accreditation cycle in 2023 as *22622VIC* and its fourth accreditation cycle under the title '*Diploma of Product Design*'.

The *Diploma of Product Design* addresses an established industry training need and provides an outcome not covered by other VET 'design' qualifications in the *CUA Creative Arts and Culture Training Package*, or any other national training package. There is currently no qualification in any national training package which reflects the fundamental skills and knowledge required to work as an entry-level product designer.

In 2020 and 2021, the CMM Service undertook consultation with RMIT (sole provider) and key industry practitioners. This consultation confirmed that there is an ongoing need for the *Diploma of Product Design* and broad industry support for re-accreditation. They believe the course still offers significant value to learners and industry. The course provides a solid foundation for entry into the workplace or to undertake further education in related Higher Education qualifications.

As provided to the CMM Service during the 2020 mid-cycle review, 2018 data for the program from RMIT graduate survey record employment for students 6 months after completing course at 81.5%. Students going on to further study was 47.9%.

#### Enrolment data

NCVER Total VET Activity 2015-2021 enrolment data for the current (*22446VIC*) and previous version (*22221VIC*) of the *Diploma of Product Design* is provided in **Table 1**.

**TABLE 1: NCVER Enrolment data for 22221VIC and 22446VIC**

NCVER Total VET Activity enrolment data							
<i>Data extracted October 2022</i>							
Victoria	2015	2016	2017	2018	2019	2020	2021
<b>22221VIC</b>	123	140	126	58	6	0	0
<b>22446VIC</b>	0	0	0	30	98	114	98
<b>TOTAL</b>	123	140	126	89	107	114	98

The enrolment data for **22221VIC** (2015-2018) is for two RTOs in Victoria. Noting that this course expired at the end of 2017. The data for 2018 & 2019 reflects those completing the course, not new enrolments.

Since its reaccreditation as **22446VIC** (2018-2021) the course has been delivered by one specialist provider in Victoria. The enrolment data under this code (22446VIC) represents the enrolments for one RTO.

As can be seen from the enrolment data, there was overall decrease in enrolment numbers 2018 as this was the 'transition year' where one RTO discontinued the program. In addition, this course was not initially included on the VET Student Loan (VSL) approved course list when VSL replaced VET FEE-HELP in 2017. This would have contributed to the drop-off in enrolments in 2018. However, in the second half of 2018 the reaccredited course (22446VIC) was included on the VSL approved course list and the following year the number of enrolments in this course tripled. Since then there have been stable enrolment numbers of 98-114 per year for 22446VIC.

### **Job outcomes**

Job roles: Product Designer (*junior/entry-level or independent/freelance*).

Completion of the *Diploma of Product Design* will equip graduates with the skills to seek employment in entry-level product design roles as part of a small or large design companies or as an independent designer.

As a product designer, individuals may work as part of design teams in a consultancy environment or for manufacturing organisations. Many product designers also take on freelance work. Individuals may work in areas including display and exhibition design, furniture, packaging, confectionery, toy design, automotive, engineering, electrical, set design and special effects.

### **Target group for the course**

The target group for undertaking the *Diploma of Product Design* are those who wish to develop the skills and knowledge of an entry-level Product Designer with the aim to employment or further study.

These individuals will have an interest in design, creative and conceptual thinking, problem-solving and have some basic technical skills related to product design.

The target group may include applicants who are:

- VCE graduates who completed design and technology at year 11 and 12,
- Mature age (i.e. those who are twelve months or more post-year-12),
- Those who are seeking a change in career opportunities,

- International students.

As outlined in the Entry Requirements (section B, 5.2), entrants to the course must be able to demonstrate an aptitude for visual design.

### Course consultation and validation process

The development of the *22622VIC Diploma of Product Design* was overseen by a project steering committee (PSC) comprised of representatives from the RTO who currently delivers the current Diploma of Product Design and industry representatives.

Course consultation and development involved extensive consultation with the PSC, including:

- Steering committee meetings to review, evaluate, and discuss industry requirements of graduates, course content (inc. draft units) and course structure.
- Additional PSC input via email, telephone consultation, online interactive forums, review/feedback on circulated drafts.
- A review of the skills and knowledge requirements of the existing course and consideration of new and emerging skills-needs.
- Consideration of suitable training package units for inclusion in the core and elective bank.
- Iterative review and revision of draft units and course structure throughout 2022.

### Members of the steering committee

Paul Charlwood (Chair)	Industrial Designer – Charlwood Designs.
Adam Norris	Design and Project Manager – Monash Food Innovation.
Andrew Louey	Industrial Designer – Hyzon Motors.
Annette Cook	Program Manager for Product Design – RMIT.
Gennaro Folino	Retail Design Manager – Stockland Group.
Harry Zanios	Workshop technician in Design Education. Independent Industrial Designer.
Jansen Lye	Program Coordinator Product Design – RMIT.
Jo-Ann Kellock	CEO – Design Institute of Australia (DIA).

	<table border="1"> <tr> <td>Karl Baxter</td> <td>Application Engineering Manager – GASBOT. Director – Alluvium Design.</td> </tr> <tr> <td>Michael Boatwood</td> <td>Designer – Imagination Play.</td> </tr> <tr> <td>Vi Le</td> <td>Designer &amp; Project Manager - H2O Designs.</td> </tr> </table> <p><b>In attendance</b></p> <table border="1"> <tr> <td>Autumn Shea</td> <td>Curriculum Maintenance Manager (CMM) for Human Services</td> </tr> <tr> <td>Wendy Dowe</td> <td>CMM Project Officer</td> </tr> <tr> <td>Christine Foard</td> <td>CMM Project Officer</td> </tr> </table> <p>This course:</p> <ul style="list-style-type: none"> <li>• does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification</li> <li>• is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set</li> <li>• does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification</li> <li>• does not comprise units that duplicate units of competency of a training package qualification.</li> </ul>	Karl Baxter	Application Engineering Manager – GASBOT. Director – Alluvium Design.	Michael Boatwood	Designer – Imagination Play.	Vi Le	Designer & Project Manager - H2O Designs.	Autumn Shea	Curriculum Maintenance Manager (CMM) for Human Services	Wendy Dowe	CMM Project Officer	Christine Foard	CMM Project Officer
Karl Baxter	Application Engineering Manager – GASBOT. Director – Alluvium Design.												
Michael Boatwood	Designer – Imagination Play.												
Vi Le	Designer & Project Manager - H2O Designs.												
Autumn Shea	Curriculum Maintenance Manager (CMM) for Human Services												
Wendy Dowe	CMM Project Officer												
Christine Foard	CMM Project Officer												
<b>3.2 Review for re-accreditation</b>	<p>The review and redevelopment of the <i>22446VIC Diploma of Product Design</i> was based on extensive monitoring and evaluation, research and consultation and validation processes to ensure the course remains relevant and reflects current work practices and job outcomes and skills-needs for product designers. A mid-cycle review was undertaken in 2020 and feedback received was taken into consideration during the reaccreditation process.</p> <p>Discussion centred on ways in which the course might be made more flexible and to reflect technological advances and changes within the industry. It was agreed that this could be accomplished by:</p> <ul style="list-style-type: none"> <li>• Updating four accredited units</li> <li>• Selecting relevant updated training package units that reflect the requirements of product designers</li> </ul> <p>The following change was incorporated during this reaccreditation:</p>												

- Changes to the course structure, packaging rules and total number of elective units required to complete the course, including:
  - increase electives by 2 units to promote flexibility in a changing industry (was 5 electives, now 7 electives)
  - a new elective grouping for 3D printing, from which at least one unit must be chosen.
- Repositioning units from core to elective and vice versa to ensure better alignment to the revised skills and knowledge profile associated with the job outcomes for the Diploma of Product Design.

For example (not limited to):

- *BSBPEF402 Develop personal work priorities* is seen as a critical skill and has been moved into the core
- *BSBMKG434 Promote products and services* moved to the electives as promotions is no longer considered a core skill
- Imported training package units:
  - Superseded units refreshed and replaced with their updated versions.
  - Some superseded units were replaced with alternate units instead of their updated versions, for example:
    - *BSBCMM411 Make presentations* is used in this reaccredited course to address key skills of developing and delivering a presentation instead of using an updated version of the superseded *BSBCRT401 Articulate, present and debate ideas* (which was listed in 22446VIC).

*See mapping table for details of alternate units used.*

- Removal of some units from the course and addition of some units which are new to the course in order to address changing skills needs. For example:
  - *VU22340 Use 3D printing to create products* is a newly imported elective unit to address the skills and knowledge for 3D printing.
  - *BSBLIB504 Develop exhibition concepts* has been removed from the course as it no longer reflects the skills needs for the role.



- The four VU-coded enterprise units were reviewed and updated for industry currency, including the following key changes:
  - Translation to the unit template for the *AQTF 2021 Standards for Accredited Courses*
  - Inclusion of 'digital' in the revised *VU23430 Develop products incorporating mechanical, electrical and/or digital features*

#### Transition and equivalence

The *22622VIC Diploma of Product Design* **replaces and is equivalent** to the vocational outcome of *22446VIC Diploma of Product Design*.

RTOs are advised there are additional resourcing requirements for delivery, training and assessment of *22622VIC Diploma of Product Design*. RTOs are required to review the changes that have occurred in the new *22622VIC Diploma of Product Design* and make the required resource adjustments prior to enrolling students.

**Table 2** below identifies the relationship between units from this re-accredited course (*22622VIC*) to units from the old *22446VIC Diploma of Product Design*.

**TABLE 2: Transition arrangements between 22446VIC and 22622VIC**

Units in the NEW 22622VIC Diploma of Product Design	Units in the OLD 22446VIC Diploma of Product Design	Relationship
BSBCMM411 Make presentations	~	Newly imported unit
BSBCRT413 Collaborate in creative processes	~	Newly imported unit
BSBCRT512 Originate and develop concepts	~	Newly imported unit
BSBESB401 Research and develop business plans	BSBSMB404 Undertake small business planning	Equivalent
BSBLEG525 Apply legal principles in intellectual property law matters	BSBIPR401 Use and respect copyright	Not Equivalent
BSBMKG434 Promote products and services	BSBMKG413 Promote products and services	Equivalent
BSBPEF402 Develop personal work priorities	~	Newly imported unit
BSBPMG421 Apply project time management techniques	~	Newly imported unit



Units in the NEW 22622VIC Diploma of Product Design	Units in the OLD 22446VIC Diploma of Product Design	Relationship
BSBPMG422 Apply project quality management techniques	~	Newly imported unit
BSBPMG430 Undertake project work	BSBPMG522 Undertake project work	Equivalent
BSBPMG530 Manage Project Scope	~	Newly imported unit
BSBTEC201 Use business software applications	~	Newly imported unit
~	BSBCRT401 Articulate, present and debate ideas	Unit removed from course Alternative unit included: BSBCMM411 Make presentations
~	BSBLIB504 Develop exhibition concepts	Unit removed from course
~	BSBWOR501 Manage personal work priorities and professional development	Unit removed from course Alternative unit included: BSBPEF402 Develop personal work priorities
CUAACD311 Produce drawings to communicate ideas	CUAACD301 Produce drawings to communicate ideas	Equivalent
CUAACD312 Produce computer-aided drawings	CUAACD302 Produce computer-aided drawings	Equivalent
CUAACD313 Produce technical drawings	CUAACD303 Produce technical drawings	Equivalent
CUAACD314 Make scale models	CUAACD304 Make scale models	Equivalent
CUAACD508 Refine model making skills	CUAACD508 Refine model making skills	No change
CUAACD531 Refine drawing and other visual representation tools	CUAACD501 Refine drawing and other visual representation tools	Equivalent
CUAANM313 Create 3D digital models	CUAANM303 Create 3D digital models	Equivalent
CUAANM411 Create advanced 3D digital models	~	Newly imported unit

Units in the NEW 22622VIC Diploma of Product Design	Units in the OLD 22446VIC Diploma of Product Design	Relationship
CUADES302 Explore and apply the creative design process to 2D forms	BSBDES302 Explore and apply the creative design process to 2D forms	Equivalent
CUADES303 Explore and apply the creative design process to 3D forms	BSBDES303 Explore and apply the creative design process to 3D forms	Equivalent
CUADES422 Research and apply techniques in product design	CUADES402 Research and apply techniques in product design	Equivalent
CUADES512 Establish, negotiate and refine a design brief	BSBDES502 Establish, negotiate and refine a design brief	Equivalent
CUADES601 Design innovative products	CUADES601 Design innovative products	No change
CUADIG415 Produce innovative digital images	CUADIG405 Produce innovative digital images	Equivalent
CUAIND412 Provide freelance services	~	Newly imported unit
CUAPPR615 Evolve ideas for professional creative work	~	Newly imported unit
CUARES503 Analyse cultural history and theory	CUARES503 Analyse cultural history and theory	No change
CUAWHS312 Apply work health and safety practices	CUAWHS302 Apply work health and safety practices	Equivalent
~	CUAGRD606 Develop graphic designs for packaging	Unit removed from course
ICPPTD302 Set up and produce 3D prints	~	Newly imported unit
MSFFDM4019 Research and select manufacturing technologies	MSFFDT5008 Research and recommend alternative manufacturing processes	Not Equivalent
MSFFDM5009 Generate and transfer complex computer-aided drawings and specifications	MSFDN5001 Generate and transfer complex computer-aided drawings and specifications	Equivalent
MSFFDM5012 Research, test and apply materials and technologies for design projects	MSFFDT5008 Research and recommend alternative manufacturing processes	Not Equivalent

Units in the NEW 22622VIC Diploma of Product Design	Units in the OLD 22446VIC Diploma of Product Design	Relationship
~	MSFFDT4004 Assess environmental impact of a design	Unit removed from course
MSS015044 Design sustainable product or process	MSS015004 Design sustainable product or process	Not Equivalent
MSS405038 Optimise process costs	MSS405030 Optimise cost of a product or service	Equivalent
VU22340 Use 3D printing to create products	~	Newly imported unit
VU23162 Use additive manufacturing technologies to produce an industry specified component	~	Newly imported unit
VU23427 Produce 2D product design drawings using software applications	VU22260 Produce 2D product design drawings using software applications	Equivalent Unit revised and updated.
VU23428 Design products from a brief	VU22261 Design and produce products from a brief	Not Equivalent Unit revised and updated. Title changed.
VU23429 Develop a product range to meet market opportunities	VU22262 Develop a product range to meet market opportunities	Equivalent Unit revised and updated.
VU23430 Develop products incorporating mechanical, electrical and/or digital features	VU22263 Develop products incorporating mechanical/electrical features	Not Equivalent Unit revised and updated. Title changed.

#### 4. Course outcomes

#### Standards 5.5, 5.6 and 5.7 AQTF 2021 Standards for Accredited Courses

##### 4.1 Qualification level

The course outcomes of the *Diploma of Product Design* are consistent with the *Australian Qualifications Framework Level 5 (Diploma)* that qualifies individuals who apply integrated technical and theoretical concepts in a broad range of contexts to undertake advanced skilled or paraprofessional work and as a pathway for further learning.

Graduates of the *Diploma of Product Design* will have the technical and theoretical knowledge in the area of work and learning as follows:

- cognitive and communication skills to identify, analyse, synthesise, and act on information from a range of sources. For example, by interpreting a project brief
- cognitive, technical and communication skills to analyse, plan, design and evaluate approaches to unpredictable problems and/or management requirements. For example, by developing a range of possible approaches to design problems or by evaluating the production feasibility of designs.
- specialist technical and creative skills to express ideas and perspectives. For example, by exploring and applying the creative design process to 3D forms.
- communication skills to transfer knowledge and specialised skills to others and demonstrate understanding of knowledge. For example, by producing drawings to communicate ideas or through discussing ideas with clients.

Graduates of the *Diploma of Product Design* will demonstrate the application of knowledge and skills as follows:

- with depth in some areas of specialisation in known or changing contexts. For example, by producing designs to meet changing market contexts.
- to transfer and apply theoretical concepts and/or technical and/or creative skills in a range of situations. For example, by designing sustainable products in a changing environment.
- with personal responsibility and autonomy in performing complex technical operations with responsibility for own outputs in relation to broad parameters for quantity and quality. For example, by researching and applying new techniques in design and production of models.
- with initiative and judgment to organise the work of self and plan, coordinate and evaluate the work of others within broad but generally well-defined parameters. For example, working with fellow designers and technicians to realise a design.

The Volume of Learning for the Diploma of Product Design is consistent with the *Australian Qualifications Framework* Level 5 (Diploma) which is typically 1 - 2 years. This incorporates structured training delivery and opportunities for practice and reinforcement of skills including, self-directed study, research, project work and written assignments.

<b>4.2 Foundation skills</b>	Foundation skills essential to performance are detailed in each unit of competency within the <i>Diploma of Product Design</i> . Foundation skill requirements, where not explicit in the performance criteria, are stated in the 'Foundation Skills' field of the units of competency.
<b>4.3 Recognition given to the course (if applicable)</b>	Not applicable.
<b>4.4 Licensing/regulatory requirements (if applicable)</b>	There is no licensed or regulated outcome for this course.
<b>5. Course rules</b>	<b>Standards 5.8 and 5.9 AQTF 2021 Standards for Accredited Courses</b>
<b>5.1 Course structure</b>	<p>To achieve the qualification <i>22622VIC Diploma of Product Design</i> the learner must successfully complete a total of 24 units comprising:</p> <ul style="list-style-type: none"> <li>- Seventeen (17) core units</li> <li>- Seven (7) elective units, consisting of: <ul style="list-style-type: none"> <li>o at least one (1) unit from the Elective Group A - 3D Printing, and</li> <li>o at least four (4) units from the Elective Group B - General Electives, and</li> <li>o up to two (2) units which may be from any of the electives listed below (Group A and/or B), any endorsed Training Package or accredited course – these units must be relevant to the work outcome and maintain the overall AQF integrity of this qualification.</li> </ul> </li> </ul> <p>Where the full course is not completed, a VET Statement of Attainment will be issued for each unit successfully completed.</p>

Unit of competency code	Unit of competency title	Field of Education code (six-digit)	Pre-requisite	Nominal hours
<b>CORE UNITS</b>				
BSBCMM411	Make presentations	100707	N/A	30
BSBPEF402	Develop personal work priorities	080305	N/A	40
CUAACD311	Produce drawings to communicate ideas	100301	N/A	90
CUAACD312	Produce computer-aided drawings	100501	N/A	60

Unit of competency code	Unit of competency title	Field of Education code (six-digit)	Pre-requisite	Nominal hours
CUAACD314	Make scale models	100301	N/A	50
CUAANM313	Create 3D digital models	100399	N/A	75
CUADES303	Explore and apply the creative design process to 3D forms	100501	N/A	60
CUADES422	Research and apply techniques in product design	100501	N/A	60
CUADES512	Establish, negotiate and refine a design brief	100501	N/A	65
CUARES503	Analyse cultural history and theory	109999	N/A	70
CUAWHS312	Apply work health and safety practices	061301	N/A	30
MSS015044	Design sustainable product or process	030101	N/A	100
MSFFDM5009	Generate and transfer complex computer-aided drawings and specifications	100599	N/A	72
VU23427	Produce 2D product design drawings using software applications	100501	N/A	85
VU23428	Design products from a brief	100501	N/A	144
VU23429	Develop a product range to meet market opportunities	100501	N/A	144
VU23430	Develop products incorporating mechanical, electrical and/or digital features	100501	N/A	180
<b>Total Core hours</b>				<b>1355</b>

## ELECTIVE UNITS

### Group A - 3D Printing (must select at least 1 unit)

ICPPTD302	Set up and produce 3D prints	030103	N/A	80
VU22340	Use 3D printing to create products	030199	N/A	40

Unit of competency code	Unit of competency title	Field of Education code (six-digit)	Pre-requisite	Nominal hours
VU23162	Use additive manufacturing technologies to produce an industry specified component	030199	N/A	50
<b>Group B - General Electives (must select at least 4 units)</b>				
BSBCRT413	Collaborate in creative processes	120301	N/A	40
BSBCRT512	Originate and develop concepts	120505	N/A	30
BSBESB401	Research and develop business plans	080301	N/A	50
BSBLEG525	Apply legal principles in intellectual property law matters	090999	N/A	50
BSBMKG434	Promote products and services	080505	N/A	40
BSBPMG421	Apply project time management techniques	080315	N/A	40
BSBPMG422	Apply project quality management techniques	080317	N/A	40
BSBPMG430	Undertake project work	080315	N/A	60
BSBPMG530	Manage Project Scope	080315	N/A	40
BSBTEC201	Use business software applications	080905	N/A	60
CUAACD313	Produce technical drawings	100501	N/A	50
CUAACD508	Refine model making skills	100301	N/A	65
CUAACD531	Refine drawing and other visual representation tools	100301	N/A	80
CUADES302	Explore and apply the creative design process to 2D forms	100501	N/A	60
CUADES601	Design innovative products	100501	N/A	50



Unit of competency code	Unit of competency title	Field of Education code (six-digit)	Pre-requisite	Nominal hours
CUAANM411	Create advanced 3D digital models	100399	CUAANM313	50
CUADIG415	Produce innovative digital images	100303	N/A	70
CUAIND412	Provide freelance services	100199	N/A	40
CUAPPR615	Evolve ideas for professional creative work	100399	N/A	50
MSFFDM4019	Research and select manufacturing technologies	100599	N/A	30
MSFFDM5012	Research, test and apply materials and technologies for design projects	100599	N/A	45
MSS405038	Optimise process costs	030101	N/A	60
<b>Total minimum nominal hours</b>				<b>1615</b>
<b>Total maximum nominal hours</b>				<b>1830</b>

### Standard 5.11 AQTF 2021 Standards for Accredited Courses

#### 5.2 Entry requirements

Applicants to *22622VIC Diploma of Product Design* are required to provide evidence that demonstrates their aptitude for visual design.

An aptitude for visual design may be evidenced in a variety of ways and may comprise (but is not limited to):

- audio-visual presentations
- computer-aided designs (CAD)
- journals
- photographs of completed work
- references or third-party reports of work completed in employment
- folio of sketches, drawings or designs
- previous design-related study.

Learners are best equipped to undertake the qualification if they have digital literacy and technology skills to self-manage within generic software applications; such as the ability to:

- navigate within the system

- save, retrieve and open files

Learners who do not enter with these digital literacy and technology skills will require additional support to undertake the qualification.

Learners enrolling in this qualification are best equipped to successfully undertake the training if they have learning, literacy, numeracy and oral communication skills equivalent to Level 3 of the Australian Core Skills Framework (ACSF). Full ACSF details and descriptors can be found on the [Department of Employment and Workplace relations website](#)

Learners with language, literacy and numeracy skills at lower levels than those suggested will require additional support to successfully undertake the qualification.

## 6. Assessment

### Standard 5.12 AQTF 2021 Standards for Accredited Courses

#### 6.1 Assessment strategy

All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of:

- Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers,

or

- the Standards for Registered Training Organisations 2015 (SRTOs),

or

- the relevant standards and Guidelines for RTOs at the time of assessment.

Assessment strategies must therefore ensure that:

- all assessments are valid, reliable and flexible and fair
- learners are informed of the context and purpose of the assessment and the assessment process
- feedback is provided to learners about the outcomes of the assessment process and guidance given for future options
- time allowance to complete a task is reasonable and specified to reflect the industry context in which the task takes place.

Assessment strategies should be designed to:

- cover a range of skills and knowledge required to demonstrate achievement of the course aim
- collect evidence on a number of occasions to suit a variety of contexts and situations
- be appropriate to the knowledge, skills, methods of delivery and needs and characteristics of learners
- assist assessors to interpret evidence consistently
- recognise prior learning

	<ul style="list-style-type: none"> <li>• be equitable to all groups of learners</li> </ul> <p>Assessment methods may include:</p> <ul style="list-style-type: none"> <li>• oral and/or written questioning</li> <li>• inspection of final process outcomes</li> <li>• portfolio of evidence such as documentation of design process of completed original designs</li> <li>• practical demonstration of required physical tasks</li> <li>• investigative research and case study analysis.</li> </ul> <p>A holistic approach to assessment is encouraged. This may be achieved by combining the assessment of more than one unit where it better replicates working practice.</p> <p><b>Imported units</b></p> <p>Assessment of units of competency imported from training packages or accredited courses must reflect the assessment requirements specified in those training products.</p>
<p><b>6.2 Assessor competencies</b></p>	<p>Assessment must be undertaken by a person or persons in accordance with:</p> <ul style="list-style-type: none"> <li>• Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 3 of the VRQA Guidelines for VET Providers,</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• the Standards for Registered Training Organisations 2015 (SRTOs),</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• the relevant standards and Guidelines for RTOs at the time of assessment.</li> </ul> <p><b>Imported units</b></p> <p>Assessment of units of competency imported from training packages or accredited courses must be undertaken by a person or persons who meet the requirements for assessors specified in those training products.</p>
<p><b>7. Delivery</b></p>	<p><b>Standards 5.12, 5.13 and 5.14 AQTF 2021 Standards for Accredited Courses</b></p>
<p><b>7.1 Delivery modes</b></p>	<p>This qualification may be delivered in a variety of modes, including via:</p> <ul style="list-style-type: none"> <li>• Classroom-based delivery</li> <li>• Workplace or simulated workplace</li> <li>• Blended learning or flexible delivery</li> </ul> <p>Delivery methods should allow for self-directed development and achievement, independent and peer to peer judgement and accountability for a high standard of outcomes.</p>



The use of workplace-based design projects is encouraged as a form of learning benefiting both learner and host organisation.

A holistic approach to delivery is encouraged. This may be achieved by combining the delivery of more than one unit where it better replicates industry practice.

It is highly recommended that training providers use additional educational support mechanisms to maximise each learner's completion of the course.

Trainers should contextualise delivery of the qualification in response to learner needs, while still meeting the requirements of the units of competency.

## 7.2 Resources

Resources that are essential for the delivery of the *Diploma of Product Design* includes:

- design studio with access to:
  - 3D printing and cutting technologies
  - colour and large format outputs
  - computers and internet
  - design and presentation software
- presentation space with access to digital presentation equipment
- modelmaking and prototype fabrication workshop equipped to suit plastics, metal, clay, hard foam and finishing materials
- access to companies with modern manufacturing technologies
- other individuals and team members with whom the learner can interact
- relevant documentation and references:
  - product design briefs
  - relevant national and state or territory legislation, including copyright
  - texts and references relating to product design
- safety equipment including first aid and workplace incident report forms.

Trainers/assessors should refer to the individual units of competency for specific resource requirements.

### Trainer competence

Training must be undertaken by a person or persons in accordance with:

- Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers,

OR

- the Standards for Registered Training Organisations 2015 (SRTOs),

OR

	<ul style="list-style-type: none"> <li>the relevant standards and Guidelines for RTOs at the time of assessment.</li> </ul> <p><b>Imported units</b></p> <p>The delivery of units of competency imported from training packages or accredited courses must reflect the requirements for resources/trainers as specified in those training products</p>
<p><b>8. Pathways and articulation</b></p>	<p><b>Standard 5.10 AQTF 2021 Standards for Accredited Courses</b></p>
	<p>There are no formal articulation arrangements in place.</p> <p>Pathways into the <i>Diploma of Product Design</i> may exist for those leaving secondary school or other vocational programs or those with vocational experience within design industries but who hold no formal qualifications.</p> <p>While the <i>Diploma of Product Design</i> has been designed to provide a vocational/employment outcome, graduates of the course may seek credit into Higher Education Bachelor Degree qualifications in cognate study areas such as <i>Bachelor of Industrial Design</i>. These pathways are by individual negotiation between the graduate and the relevant University.</p> <p>This course contains units of competency imported from national training packages and other accredited courses. Participants who successfully complete any of these units will be able to gain credit into other qualifications containing these units in any future studies. Likewise, participants who have already completed relevant imported units from previous training, will be granted a credit for the unit/s</p>
<p><b>9. Ongoing monitoring and evaluation</b></p>	<p><b>Standard 5.15 AQTF 2021 Standards for Accredited Courses</b></p>
	<p>The Curriculum Maintenance Manager for Human Services is responsible for the ongoing monitoring and evaluation of this course.</p> <p>A review of the course will take place at the mid-point of the accreditation period. Feedback will be sought via surveys or one-on-one consultations from the project steering committee involved in the reaccreditation of this course, RTOs who deliver the course and other key stakeholders.</p> <p>The Victorian Registration and Qualifications Authority (VRQA) will be notified of any significant changes to the course resulting from the course monitoring and evaluation processes.</p>

## Section C – Units of competency

The following units of competency have been developed for this course and are attached in this section:

- VU23427 Produce 2D product design drawings using software applications
- VU23428 Design products from a brief
- VU23429 Develop a product range to meet market opportunities
- VU23430 Develop products incorporating mechanical, electrical and/or digital features

### Imported Units

#### Imported from Accredited Courses

The following unit of competency from *22470VIC Certificate II in Engineering Studies* can be accessed from the Victorian Government website ([here](#)):

- VU22340 Use 3D printing to create products

The following unit of competency from *22588VIC Certificate III in Enabling Technologies* can be accessed from the Victorian Government website ([here](#)):

- VU23162 Use additive manufacturing technologies to produce an industry specified component

#### Imported from Training Packages

The following units of competency from the *BSB Business Services Training Package* can be accessed from the [Training.gov.au](http://Training.gov.au) website

- BSBCMM411 Make presentations
- BSBCRT413 Collaborate in creative processes
- BSBCRT512 Originate and develop concepts
- BSBESB401 Research and develop business plans
- BSBLEG525 Apply legal principles in intellectual property law matters
- BSBMKG434 Promote products and services
- BSBPEF402 Develop personal work priorities
- BSBPMG421 Apply project time management techniques
- BSBPMG422 Apply project quality management techniques
- BSBPMG430 Undertake project work
- BSBPMG530 Manage Project Scope
- BSBTEC201 Use business software applications

The following units of competency from the *CUA Creative Arts and Culture Training Package* can be accessed from the [Training.gov.au](http://Training.gov.au) website

- CUAACD311 Produce drawings to communicate ideas
- CUAACD312 Produce computer- aided drawings
- CUAACD313 Produce technical drawings

- CUAACD314 Make scale models
- CUAACD508 Refine model making skills
- CUAACD531 Refine drawing and other visual representation tools
- CUAANM313 Create 3D digital models
- CUAANM411 Create advanced 3D digital models
- CUADES302 Explore and apply the creative design process to 2D forms
- CUADES303 Explore and apply the creative design process to 3D forms
- CUADES422 Research and apply techniques in product design
- CUADES512 Establish, negotiate and refine a design brief
- CUADES601 Design innovative products
- CUADIG415 Produce innovative digital images
- CUAIND412 Provide freelance services
- CUAPPR615 Evolve ideas for professional creative work
- CUARES503 Analyse cultural history and theory
- CUAWHS312 Apply work health and safety practices

The following unit of competency from the *ICP Printing and Graphic Arts Training Package* can be accessed from the [Training.gov.au](https://training.gov.au) website

- ICPPTD302 Set up and produce 3D prints

The following units of competency from the *MSF Furnishing Training Package* can be accessed from the [Training.gov.au](https://training.gov.au) website

- MSFFDM4019 Research and select manufacturing technologies
- MSFFDM5009 Generate and transfer complex computer-aided drawings and specifications
- MSFFDM5012 Research, test and apply materials and technologies for design projects

The following unit of competency from the *MSS Sustainability Training Package* can be accessed from the [Training.gov.au](https://training.gov.au) website

- MSS015044 Design sustainable product or process
- MSS405038 Optimise process costs

<b>Unit Code</b>	<b>VU23427</b>		
<b>Unit Title</b>	<b>Produce 2D product design drawings using software applications</b>		
<b>Application</b>	<p>This unit describes the performance outcomes, skills, and knowledge to produce two-dimensional (2D) product design drawings using software applications. This includes three-dimensional (3D) representations of an object or design on a 2D surface.</p> <p>It requires the ability to establish a drawing template file to create and edit drawings, output drawings and use saving, backing up and importing file functions.</p> <p>The unit applies to product designers who use software applications to prepare technical and non-technical 2D drawings from project briefs, sketches, drawings, plans and from 3D models. The drawings produced and notations included are required to conform to Australian Standards and drawing protocols.</p> <p><i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication</i></p>		
<b>Pre-requisite Unit(s)</b>	N/A		
<b>Competency Field</b>	N/A		
<b>Unit Sector</b>	N/A		
<b>Elements</b>	<b>Performance Criteria</b>		
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.</i>		
1	Determine drawing requirements	1.1	Identify project objectives and establish timeframes for completion
		1.2	Confirm purpose, scope, and information and presentation requirements for drawing with relevant personnel
		1.3	Identify and collect all data necessary to produce the drawing
2	Produce a drawing template file	2.1	Set up the drawing environment
		2.2	Create a suitable drawing management strategy
		2.3	Build a product design library
		2.4	Create appropriate text and dimension styles
		2.5	Set up title blocks
3	Create product design drawings	3.1	Confirm input information for translation into 2D drawings





		3.2	Import data from other software applications to produce drawings, as required
		3.3	Add text, as required, according to standard operating procedures, Australian Standards and drawing protocols
		3.4	Apply appropriate scale and arrangement of projected, sectional and detail views, according to Australian Standards and drawing protocols
		3.5	Import symbols to represent product features, including size, shape and materials
		3.6	Check and validate drawing against job requirements, standard operating procedures, Australian Standards and drawing protocols
		3.7	Discuss drawings with required personnel and confirm required amendments
		3.8	Use editing commands to modify drawing elements and existing text
		3.9	Follow relevant work health and safety procedures for drawing activities
4	Output drawings	4.1	Set page layout for the drawing file to suit output requirements
		4.2	Set parameters for the output
		4.3	Output drawings to the appropriate required format
		4.4	Check output meets job requirements
5	Manage files	5.1	Create suitable file directories for the drawing project
		5.2	Save and back up drawing files to the specified drives or directories
		5.3	Name new files and retrieve, rename and edit saved files as required

**Range of Conditions**

N/A

**Foundation Skills**

Foundation Skills describe the language, literacy, numeracy and employability skills that are essential to performance.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> <li>interpret key requirements of documentation, plans, drawings and specifications</li> </ul>
Writing skills to:	<ul style="list-style-type: none"> <li>add clear and explicit notations and specifications to drawings using correct conventions and terminology</li> </ul>



Oral communication skills to:	<ul style="list-style-type: none"> <li>clarify project and drawings requirements</li> <li>elicit information and feedback from others using questioning and careful listening</li> </ul>
Numeracy skills to:	<ul style="list-style-type: none"> <li>apply measurements and make calculations relating to scales and ratios in drawings</li> </ul>
Problem-solving skills to:	<ul style="list-style-type: none"> <li>interpret a range of information e.g. sketches, notes, CAD models, photographs, equations or measurements, to produce 2D drawings</li> </ul>
Teamwork skills to:	<ul style="list-style-type: none"> <li>work collaboratively with others and participate in review of drawings</li> </ul>
Planning and organising skills to:	<ul style="list-style-type: none"> <li>organise and plan drawing workflows in a logical sequence</li> <li>manage time to complete final drawings within established timeframes</li> <li>maintain drawing version control</li> </ul>
Self-management skills to:	<ul style="list-style-type: none"> <li>complete drawings to meet job requirements</li> <li>take responsibility for following workplace procedures and safety requirements when planning and undertaking work</li> </ul>
Digital literacy skills to:	<ul style="list-style-type: none"> <li>successfully navigate and operate complex digital software to create 2D drawings and manage files</li> </ul>

**Unit Mapping Information**

Current Version	Previous Version	Comments
VU23427 Produce 2D product design drawings using software applications	VU22260 Produce 2D product design drawings using software applications	<b><i>Equivalent</i></b>



<b>Assessment Requirements</b>	
<b>Title</b>	Assessment Requirements for <b><i>VU23427 Produce 2D product design drawings using software applications</i></b>
<b>Performance Evidence</b>	<p>The candidate must demonstrate the ability to complete tasks outlined in the elements and performance criteria of this unit in the context of the job role, including evidence of the ability to:</p> <ul style="list-style-type: none"> <li>● Produce and edit at least four (4) 2D technical drawing packs that meet job requirements and adhere to Australian Standards and drawing protocols.</li> </ul> <p>Each technical drawing pack must include all of the following:</p> <ul style="list-style-type: none"> <li>○ assembly/subassembly view</li> <li>○ exploded view</li> <li>○ parts view</li> <li>○ isometric projection</li> <li>○ orthographic projection</li> </ul> <ul style="list-style-type: none"> <li>● Produce and edit at least one (1) product visualisation drawing.</li> </ul> <p>In the course of producing the drawings, the candidate must use software applications appropriate to a product design workplace.</p>
<b>Knowledge Evidence</b>	<p>The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:</p> <ul style="list-style-type: none"> <li>● Types and uses of drawings commonly required for product design, including the relationship between the views contained in drawings</li> <li>● Functions and operation of software applications used for product design</li> <li>● Protocols applicable to the production of 2D product design drawings, including: <ul style="list-style-type: none"> <li>○ dimensions</li> <li>○ hierarchy</li> <li>○ numbering</li> <li>○ bill of materials (BOM); parts list</li> <li>○ scale</li> <li>○ standard units of measurement</li> <li>○ appropriate line weights/thicknesses</li> <li>○ Correct dimensioning to datums</li> </ul> </li> <li>● Key components of a drawing management strategy, including: <ul style="list-style-type: none"> <li>○ autostyles</li> <li>○ conventions</li> <li>○ imported files</li> <li>○ layers</li> <li>○ linked files</li> <li>○ presets</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ version control</li> <li>○ dimension rationalisation</li> <li>○ appropriate publishing format for document sharing</li> <li>● Drawing commands and their application</li> <li>● Technical vocabulary relating to technical product drawings and documentation</li> <li>● Product features used in product design, and their representation in drawings</li> <li>● Work health and safety requirements as they relate to working for periods of time on screen and computers</li> <li>● Australian drawing standards and other relevant industry standards, codes of practice and legislation relating to the production of 2D drawings using software applications</li> <li>● Checking and validating processes used for drawings</li> <li>● Hard copy and digital file management procedures.</li> </ul>
<p><b>Assessment Conditions</b></p>	<p>Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.</p> <p>The assessment environment must include access to:</p> <ul style="list-style-type: none"> <li>● a suitable workspace</li> <li>● a computer</li> <li>● software applications for producing 2D drawings.</li> </ul> <p><b>Assessor requirements</b></p> <p>Assessors of this unit must satisfy the requirements for assessors in applicable Vocational Educational and Training legislation, frameworks and/or standards.</p> <p>No specialist vocational competency requirements for assessors apply to this unit.</p>



<b>Unit Code</b>	<b>VU23428</b>		
<b>Unit Title</b>	<b>Design products from a brief</b>		
<b>Application</b>	<p>This unit describes the performance outcomes, skills and knowledge required to design a product from a brief that specifies the product's purpose and target market.</p> <p>It requires the ability to interpret the product design brief, undertake research, understand target user demographic, develop design options, plan the design process, test and iterate design with users and provide visual concepts to the client before making the product model.</p> <p>This unit applies to product designers who design and develop products from a brief. Product designers may work independently or as part of a product development team.</p> <p><i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i></p>		
<b>Pre-requisite Unit(s)</b>	N/A		
<b>Competency Field</b>	N/A		
<b>Unit Sector</b>	N/A		
<b>Elements</b>	<b>Performance Criteria</b>		
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.</i>		
1	Analyse the product design brief	1.1	Interpret the specifications of the brief
		1.2	Establish the market, market segment or client for the proposed product
		1.3	Clarify specifications and parameters of the brief with relevant individuals
2	Undertake research to inform the design	2.1	Source, evaluate and record research information relevant to the brief, including any available shadow testing of user experience of current relevant products
		2.2	Discuss research with target users, relevant colleagues and clients to determine relevance to the brief
		2.3	Use research information to establish criteria for selecting appropriate design options for the design problem
3	Develop innovative options	3.1	Create different design options and ideas to meet design brief requirements
		3.2	Apply relevant principles of functionality, perceived quality (craftsmanship), user experience, usability, ergonomics, aesthetics, and sustainability to develop the design options

		3.3	Develop and use range of criteria to evaluate the different design options and ideas
		3.4	Select preferred design option for the product against agreed criteria, research undertaken, and in consultation with relevant stakeholders
		3.5	Document the research, rationale and criteria used for the design option selection process
4	Develop design proposal and project plan	4.1	Plan the design proposal representing the design vision
		4.2	Identify all components and resources required to produce the design option
		4.3	Assess the technical, resource, design for colour materials and finish (CMF) and workspace and/or manufacturing requirements associated with the design option
		4.4	Consult with, and document input from, any technical experts or specialist services required to produce the design option
		4.5	Produce 2D and 3D visual interpretations of the design that communicate the size, shape, CMF and ergonomics of the product
		4.6	Prepare written and visual support materials to contribute to final presentation
		4.7	Incorporate compliance with relevant certification, regulatory and legislative requirements in the project plan, where applicable to the design
5	Deliver concepts to client	5.1	Present the design proposal and project plan to client, including rationale for any changes
		5.2	Respond to feedback and make changes to the design as required
		5.3	Confirm design proposal and project plan with client
6	Realise product design	6.1	Develop the product model using devices, tools, techniques and materials to meet conceptual vision
		6.2	Evaluate product model against nominated criteria and document findings to inform future improvements and address constraints identified during its development
		6.3	Use safe working practices throughout the process of making the product model
		6.4	Prepare documentation and specifications to accompany final design
		6.5	Confirm that intellectual property and other legislative requirements have been met

	6.6	Identify processes for protecting intellectual property of the design, where required
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## Range of Conditions

The physical modelling of a concept is used to visualise the design and to test aspects of the product against user and functional requirements.

For the purposes of this unit, the term **'product model'** may include physical models such as:

- mock-ups,
- scale models,
- aesthetic models
- working models
- prototypes

## Foundation Skills

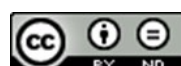
Foundation Skills describe the language, literacy, numeracy and employability skills that are essential to performance.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> <li>● interpret and analyse complex information from a range of sources in order to inform the design, develop design proposal and develop project plan</li> </ul>
Writing skills to:	<ul style="list-style-type: none"> <li>● convey specialised information relating to market segments, materials, sustainable considerations, and production processes</li> </ul>
Oral communication skills to:	<ul style="list-style-type: none"> <li>● articulate design ideas, details and processes to a range of audiences</li> <li>● present information using tone and vocabulary to suit audience</li> <li>● gain input and feedback using active listening and questioning techniques</li> </ul>
Numeracy skills to:	<ul style="list-style-type: none"> <li>● estimate, measure and calculate for developing and realising designs</li> <li>● interpret measurements for the production of models</li> </ul>
Problem-solving skills to:	<ul style="list-style-type: none"> <li>● use creative thinking techniques to identify opportunities and/or problems and generate possible solutions</li> </ul>
Teamwork skills to:	<ul style="list-style-type: none"> <li>● use a range of collaborative techniques to clarify and refine ideas to develop an optimal design solution</li> <li>● liaise, consult and negotiate with others using appropriate communication practices</li> </ul>
Planning and organising skills to:	<ul style="list-style-type: none"> <li>● take responsibility for navigating project phases, including meeting all deadlines and target dates, in order to meet job requirements</li> </ul>

Self-management skills to:	<ul style="list-style-type: none"> <li>• work autonomously, seeking expert opinion and assistance as required</li> <li>• organise and manage own work environment for efficient use of resources</li> </ul>
Technology skills to:	<ul style="list-style-type: none"> <li>• use appropriate techniques, materials, equipment and processes to develop models of the product that meet project requirements</li> </ul>
Digital literacy skills to:	<ul style="list-style-type: none"> <li>• use a range of digital and analogue strategies to design, document, and store information</li> </ul>

**Unit Mapping Information**

Current Version	Previous Version	Comments
VU23428 Design products from a brief	VU22261 Design and produce products from a brief	<b><i>Not Equivalent</i></b>





## Assessment Requirements

Title	Assessment Requirements for <i>VU23428 Design products from a brief</i>
<b>Performance Evidence</b>	<p>The candidate must demonstrate the ability to complete tasks outlined in the elements and performance criteria of this unit in the context of the job role, including evidence of the ability to:</p> <ul style="list-style-type: none"> <li>● Design at least one (1) product from a brief</li> <li>● Produce at least one (1) model of the designed product</li> </ul> <p>In the course of this, the candidate must:</p> <ul style="list-style-type: none"> <li>● Develop the product concept, undertake research to inform the design and generate innovative design options</li> <li>● Develop a design proposal and a project plan to realise the design option</li> <li>● Produce written and visual product design documentation</li> <li>● Communicate effectively with clients, colleagues and other relevant individuals</li> </ul>
<b>Knowledge Evidence</b>	<p>The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:</p> <ul style="list-style-type: none"> <li>● Purpose and characteristics of a product design brief</li> <li>● Principles of functionality, ergonomics, aesthetics relevant to product design</li> <li>● Principles of usability, user experience, perceived quality</li> <li>● Principles of sustainability, including: <ul style="list-style-type: none"> <li>○ social, environmental and economic impacts relevant to product design and production processes</li> <li>○ key circular economy principles and considerations, as they relate to product design</li> </ul> </li> <li>● Key considerations/features of copyright, moral rights and intellectual property issues and legislation, including ownership, and their relevance to the product design industry</li> <li>● Sources of information related to copyright, moral rights and intellectual property issues, including ownership, relevant to the product design industry</li> <li>● Industry and design standards relevant to product design</li> <li>● Regulatory and legislative requirements and considerations relevant to product design and production of the design</li> <li>● Production processes as they apply to product design</li> <li>● Plans, drawings and specifications used in product design, including current industry software and hardware to produce those</li> <li>● Workplace safety requirements and legislation in relation product design and production of the product model</li> <li>● Facilities, tools, techniques and materials required to produce models and samples.</li> </ul>

**Assessment  
Conditions**

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

The assessment environment must include access to:

- a suitable workspace
- product design brief
- references and resources relevant to product design
- equipment, tools and materials used to design and produce a product model
- appropriate presentation environment and resources
- individuals and team members with whom the learner can interact to support design development and realisation.

**Assessor requirements**

Assessors of this unit must satisfy the requirements for assessors in applicable Vocational Educational and Training legislation, frameworks and/or standards.

No specialist vocational competency requirements for assessors apply to this unit.

<b>Unit Code</b>	<b>VU23429</b>		
<b>Unit Title</b>	<b>Develop a product range to meet market opportunities</b>		
<b>Application</b>	<p>This unit describes the skills and knowledge required to design a product range with a set of variations on a specific product made to appeal to different market segments.</p> <p>It requires the ability to research and analyse market segments, understand market opportunity, identify competitor innovations, establish design requirements, develop design options, plan the design process and provide visual concepts to the client before making a physical representation of the product range.</p> <p>This unit applies to product designers who design and produce products to meet new market opportunities by discovering unmet customer needs or by making improvements to products for competitive advantages. This includes the development of related products that can be marketed together to similar market segments. Product designers may work independently or as part of a product development team.</p> <p><i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication</i></p>		
<b>Pre-requisite Unit(s)</b>	N/A		
<b>Competency Field</b>	N/A		
<b>Unit Sector</b>	N/A		
<b>Elements</b>	<b>Performance Criteria</b>		
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.</i>		
1	Research product market	1.1	Gather information on target user and market segment for a product range in accordance with the brief
		1.2	Produce a character study/user persona that suggests how the target user will think, react, likes and dislikes
		1.3	Evaluate market segment and character study/user persona in order to identify areas for further exploration
		1.4	Develop research parameters to establish elements of the product design, including any essential attributes that the product range must meet to match the target user's needs/wants
		1.5	Evaluate the research in order to analyse the market performance of existing and potential competitors and their products to benchmark and identify potential opportunities or threats
		1.6	Liaise with relevant users, colleagues and subject matter experts to assess feasibility for product range or additional related products

		1.7	Establish opportunities for product range based on the analysis of information collected
		1.8	Document research throughout process including methodology, data collected, findings and outcomes
2	Establish design requirements	2.1	Determine the intellectual property and copyright, and legislative requirement impacts for the product range
		2.2	Determine the sustainable product proposition, using sustainability principles
		2.3	Determine key design requirements, including: function, materials, lifecycle, manufacturability, disassembly, client policy, specific materials, and integration to existing range
		2.4	Collaborate with relevant stakeholders to refine parameters of the product range
3	Develop product range options	3.1	Create different design options and ideas for the product range to meet design brief and established design requirements
		3.2	Consider and challenge the market research in development of the design options
		3.3	Apply relevant principles of functionality, perceived quality (craftsmanship), user experience, usability, ergonomics, aesthetics, and sustainability to development of the design options
		3.4	Develop and use range of criteria to evaluate the different design options and ideas
		3.5	Select preferred design option for the product range against agreed criteria, research undertaken, and in consultation with relevant stakeholders
		3.6	Document the research, rationale and criteria used for the design option selection process
4	Develop design proposal and project plan	4.1	Plan the design proposal representing the design vision for the product range
		4.2	Identify all components and resources required to produce the design option, undertaking additional research where required
		4.3	Assess technical, resource, design for colour materials and finish (CMF) and workspace and/or manufacturing requirements associated with the design option
		4.4	Consult with, and document input from, any technical experts or specialist services required to produce the design option

		4.5	Collaborate with relevant personnel to contribute to the determination of financial, physical and human resources and timeframes required for developing design concept
		4.6	Produce 2D and 3D visual interpretations of the design that communicate the size, shape, CMF and ergonomics of the product range
		4.7	Prepare written and visual support materials to contribute to final presentation
		4.8	Incorporate compliance with relevant certification, regulatory and legislative requirements into the project plan, where applicable to the design
5	Deliver concepts to client	5.1	Present the design proposal and project plan to client, including rationale for any changes
		5.2	Respond to feedback and make changes to the design as required
		5.3	Confirm design proposal and project plan with client
6	Realise product range	6.1	Develop models of the product range using devices, tools, techniques and materials to demonstrate the conceptual vision
		6.2	Evaluate models of product range against nominated criteria and document findings to inform future improvements and address constraints identified during its development
		6.3	Use safe working practices throughout the process of making the models for the product range
		6.4	Prepare documentation and specifications to accompany final design
		6.5	Confirm that intellectual property and other legislative requirements have been met
		6.6	Identify processes for protecting intellectual property of the design, where required

**RANGE OF CONDITIONS**

The physical modelling of a concept is used to visualise the design and to test aspects of the product against user and functional requirements.

For the purposes of this unit, the term ***‘models of the product range’*** may include physical models such as:

- mock-ups,
- scale models,
- aesthetic models
- working models
- prototypes

**Foundation Skills**



Foundation Skills describe the language, literacy, numeracy and employability skills that are essential to performance.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> <li>interpret and analyse complex information from a range of sources in order to inform the design, develop design proposal and develop project plan</li> </ul>
Writing skills to:	<ul style="list-style-type: none"> <li>convey specialised information relating to market segments, materials, sustainable considerations and production processes</li> </ul>
Oral communication skills to:	<ul style="list-style-type: none"> <li>articulate design ideas, details and processes to a range of audiences</li> <li>present information using tone and vocabulary to suit audience</li> <li>gain input and feedback using active listening and questioning techniques</li> </ul>
Numeracy skills to:	<ul style="list-style-type: none"> <li>interpret information to establish costs and timelines</li> <li>estimate, measure and calculate for developing and realising designs</li> <li>interpret measurements for the production of models</li> </ul>
Problem-solving skills to:	<ul style="list-style-type: none"> <li>use creative thinking techniques to identify opportunities and/or problems and generate possible solutions</li> </ul>
Teamwork skills to:	<ul style="list-style-type: none"> <li>use a range of collaborative techniques to clarify and refine ideas to develop an optimal design solution</li> <li>liaise, consult and negotiate with others using appropriate communication practices</li> </ul>
Planning and organising skills to:	<ul style="list-style-type: none"> <li>take responsibility for navigating project phases, including meeting all deadlines and target dates, in order to meet job requirements</li> </ul>
Self-management skills to:	<ul style="list-style-type: none"> <li>work autonomously, seeking expert opinion and assistance as required</li> <li>organise and manage own work environment for efficient use of resources</li> </ul>
Technology skills to:	<ul style="list-style-type: none"> <li>use appropriate techniques, materials, equipment and processes to develop models of the product range that meet project requirements</li> </ul>
Digital literacy skills to:	<ul style="list-style-type: none"> <li>use a range of digital and analogue strategies to design, document, and store information</li> </ul>

**Unit Mapping Information**

Current Version	Previous Version	Comments
VU23429 Develop a product range to meet market opportunities	VU22262 Develop a product range to meet market opportunities	<b><i>Equivalent</i></b>



## Assessment Requirements

<b>Title</b>	Assessment Requirements for <b><i>VU23429 Develop a product range to meet market opportunities</i></b>
<b>Performance Evidence</b>	<p>The candidate must demonstrate the ability to complete tasks outlined in the elements and performance criteria of this unit in the context of the job role, including evidence of the ability to:</p> <ul style="list-style-type: none"> <li>● Design a product range (comprised of three (3) or more products) that reflects one (1) or more of the following aspects: <ul style="list-style-type: none"> <li>○ based on common theme or identity</li> <li>○ linked technically</li> <li>○ linked visually.</li> </ul> </li> <li>● Produce at least one (1) model of each product within the designed product range.</li> </ul> <p>In the course of this, the candidate must:</p> <ul style="list-style-type: none"> <li>● Develop the product concept, undertake research to inform the design and generate innovative design options</li> <li>● Develop a design proposal and a project plan to realise the design option</li> <li>● Produce written and visual product design documentation</li> <li>● Communicate effectively with clients, colleagues and other relevant individuals</li> </ul>
<b>Knowledge Evidence</b>	<p>The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:</p> <ul style="list-style-type: none"> <li>● Research methodologies used to analyse market and segments in relation to product design</li> <li>● Purpose, types and characteristics of product ranges</li> <li>● Principles of functionality, ergonomics, aesthetics relevant to product design</li> <li>● Principles of usability, user experience, perceived quality</li> <li>● Financial, physical and human resources required for product design</li> <li>● Principles of sustainability, including: <ul style="list-style-type: none"> <li>○ social, environmental and economic impacts relevant to product design and production processes</li> <li>○ key circular economy principles and considerations, as they relate to product design</li> </ul> </li> <li>● Key considerations/features of copyright, moral rights and intellectual property issues and legislation, including ownership, and their relevance to the design industry</li> <li>● Sources of information related to copyright, moral rights and intellectual property issues including ownership, relevant to the product design industry</li> <li>● Regulatory and legislative requirements relevant to product design and production of the design</li> </ul>



	<ul style="list-style-type: none"> <li>● Production processes as they apply to product design</li> <li>● Quality assurance processes relating to the production process</li> <li>● Plans, drawings and specifications used in product design, including current industry software and hardware to produce those</li> <li>● Workplace safety requirements and legislation in relation product design and production processes</li> <li>● Facilities, tools, techniques and materials required to produce models, prototypes and samples.</li> </ul>
<p><b>Assessment Conditions</b></p>	<p>Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.</p> <p>The assessment environment must include access to:</p> <ul style="list-style-type: none"> <li>● a suitable workspace</li> <li>● product design brief</li> <li>● references and resources relevant to product design</li> <li>● equipment, tools and materials used to design and produce a model of a product range</li> <li>● appropriate presentation environment and resources</li> <li>● individuals and team members with whom the learner can interact to support design development and realisation.</li> </ul> <p><b>Assessor requirements</b></p> <p>Assessors of this unit must satisfy the requirements for assessors in applicable Vocational Educational and Training legislation, frameworks and/or standards.</p> <p>No specialist vocational competency requirements for assessors apply to this unit.</p>



<b>Unit Code</b>	<b>VU23430</b>	
<b>Unit Title</b>	<b>Develop products incorporating mechanical, electrical and/or digital features</b>	
<b>Application</b>	<p>This unit describes the performance outcomes, skills and knowledge required to design and produce a product incorporating mechanical, electrical and or digital features from a brief, applying a range of advanced techniques and materials.</p> <p>It includes the ability to contribute to the product design through the research and development of design options, planning the design process and providing visual concepts to the clients before realising the prototype of the product or a proof of concept accompanied by a physical model and visual representation.</p> <p>This unit applies to product designers who design and produce products that incorporate mechanical, electrical and/or digital features. Product designers may work independently or as part of a product development team.</p> <p><i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication</i></p>	
<b>Pre-requisite Unit(s)</b>	N/A	
<b>Competency Field</b>	N/A	
<b>Unit Sector</b>	N/A	
<b>Elements</b>	<b>Performance Criteria</b>	
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.</i>	
1	Generate ideas and develop a design concept	1.1 Evaluate the potential for a functional innovative product that incorporates mechanical, electrical and/or digital features based on a targeted market and requirements of design brief
		1.2 Use range of creative thinking techniques to generate different options and ideas for the design concept
		1.3 Identify and evaluate sustainability, intellectual property and copyright, and legislative requirements that may impact or inform the design concept
		1.4 Collaborate with others to refine parameters of the design concept
2	Undertake research to support the design concept	2.1 Source relevant information relating to the design concept, including information on target user groups, product markets, technologies, technical information, product competitors and brands
		2.2 Evaluate the research findings and assess for relevance and applicability to the development of the design concept

		2.3	Liaise with relevant specialists in relation to technological and researched options
		2.4	Access information on available mechanical, electrical or digital devices to meet requirements of the design brief
		2.5	Document research throughout process including methodology, data collected, findings and outcomes
3	Develop innovative options	3.1	Determine innovation framework to meet the parameters of the brief
		3.2	Apply relevant principles of functionality, perceived quality (craftsmanship), user experience, usability, ergonomics, aesthetics, and sustainability to develop the design options
		3.3	Develop and use range of criteria to evaluate the different design options and ideas; including criteria for selecting different mechanical, electrical or digital features
		3.4	Select preferred design option for the product against agreed criteria, research undertaken, and in consultation with relevant stakeholders
		3.5	Document the research, rationale and criteria used for the design option selection process
4	Develop design proposal and project plan	4.1	Plan the design proposal representing the design vision for the product
		4.2	Identify all components and resources required to produce the design option, undertaking additional research where required
		4.3	Assess technical, resource, design for colour materials and finish (CMF) and workspace and/or manufacturing requirements associated with the design option
		4.4	Consult with, and document input from, any technical experts or specialist services required to produce the design options
		4.5	Collaborate with relevant personnel to contribute to the determination of financial, physical and human resources and timeframes required for developing design concept
		4.6	Produce 2D and 3D visual interpretations of the design that communicate the size, shape, CMF and ergonomics of the product
		4.7	Prepare written and visual support materials to contribute to final presentation
		4.8	Incorporate compliance with relevant certification, regulatory and legislative requirements in the project plan, where applicable to the design



5	Deliver concepts to client	5.1	Present the design proposal and project plan to client, including rationale for any changes
		5.2	Respond to feedback and make changes to the design as required
		5.3	Confirm design proposal and project plan with client
6	Realise product design	6.1	Develop the prototype or proof of concept using appropriate facilities, tools, techniques and materials
		6.2	Evaluate prototype or proof of concept against nominated criteria and document findings to inform future improvements and address constraints identified during its development
		6.3	Use safe working practices throughout the production of the prototype or proof of concept
		6.4	Prepare documentation and specifications to accompany final design
		6.5	Confirm that intellectual property and other legislative requirements have been met
		6.6	Identify processes for protecting intellectual property of the design, where required

### Range of Conditions

N/A

### Foundation Skills

Foundation Skills describe the language, literacy, numeracy and employability skills that are essential to performance.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> <li>interpret and analyse complex information from a range of sources in order to inform the design, develop design proposal and develop project plan</li> </ul>
Writing skills to:	<ul style="list-style-type: none"> <li>convey specialised information relating to market segments, materials, sustainable considerations and production processes</li> </ul>
Oral communication skills to:	<ul style="list-style-type: none"> <li>articulate design ideas, details and processes to a range of audiences</li> <li>present information using tone and vocabulary to suit audience</li> <li>gain input and feedback using active listening and questioning techniques</li> </ul>
Numeracy skills to:	<ul style="list-style-type: none"> <li>Interpret information to establish costs and timelines</li> </ul>

	<ul style="list-style-type: none"> <li>Estimate, measure and calculate for developing and realising designs</li> <li>Interpret measurements for the production of prototypes or proof of concepts</li> </ul>
Problem-solving skills to:	<ul style="list-style-type: none"> <li>use creative thinking techniques to identify opportunities and/or problems and generate possible solutions</li> </ul>
Teamwork skills to:	<ul style="list-style-type: none"> <li>use a range of collaborative techniques to clarify and refine ideas to develop an optimal design solution</li> <li>liaise, consult and negotiate with others using appropriate communication practices</li> </ul>
Planning and organising skills to:	<ul style="list-style-type: none"> <li>take responsibility for navigating project phases, including meeting all deadlines and target dates, in order to meet job requirements</li> </ul>
Self-management skills to:	<ul style="list-style-type: none"> <li>work autonomously, seeking expert opinion and assistance as required</li> <li>organise and manage own work environment for efficient use of resources</li> </ul>
Technology skills to:	<ul style="list-style-type: none"> <li>use appropriate techniques, materials, equipment and processes to develop prototypes or proof of concept of the designed product</li> </ul>
Digital literacy skills to:	<ul style="list-style-type: none"> <li>use a range of digital and analogue strategies to design, document, and store information</li> </ul>

**Unit Mapping Information**

Current Version	Previous Version	Comments
VU23430 Develop products incorporating mechanical, electrical and/or digital features	VU22263 Develop products incorporating mechanical/electrical features	<b>Not Equivalent</b>



**Assessment Requirements**

<p><b>Title</b></p>	<p>Assessment Requirements for <b><i>VU23430 Develop products incorporating mechanical, electrical and/or digital features</i></b></p>
<p><b>Performance Evidence</b></p>	<p>The candidate must demonstrate the ability to complete tasks outlined in the elements and performance criteria of this unit in the context of the job role, including evidence of the ability to:</p> <ul style="list-style-type: none"> <li>● design an innovative product that incorporates one (1) of the following features:             <ul style="list-style-type: none"> <li>– mechanical or moving components</li> <li>– electrical features</li> <li>– digital features</li> <li>– combination of mechanical components, electrical and/or digital features.</li> </ul> </li> <li>● produce at least one (1):             <ul style="list-style-type: none"> <li>– prototype of the designed product</li> </ul> <p style="text-align: center;">OR</p> <li>– proof of concept of the designed product; accompanied by a:             <ul style="list-style-type: none"> <li>○ physical model that clearly articulates the aesthetic form and structure of the product</li> </ul> <p style="text-align: center;">AND</p> <li>○ visualisation of internal arrangement and/or operation of the product</li> </li></li></ul> <p>In the course of this, the candidate must:</p> <ul style="list-style-type: none"> <li>● develop the design concept, undertake research to inform the design and generate innovative design options</li> <li>● develop a design proposal and a project plan to realise the design option</li> <li>● produce written and visual product design documentation</li> <li>● communicate effectively with clients, colleagues and other relevant individuals</li> </ul>
<p><b>Knowledge Evidence</b></p>	<p>The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:</p> <ul style="list-style-type: none"> <li>● methodologies used to explore potential markets in relation to product design</li> <li>● principles of functionality, ergonomics, aesthetics relevant to product design</li> <li>● principles of usability, user experience, perceived quality</li> <li>● financial, physical and human resources required for product design</li> <li>● principles of sustainability, including:             <ul style="list-style-type: none"> <li>○ social, environmental and economic impacts relevant to product design and production processes</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ key circular economy principles and considerations, as they relate to product design</li> <li>● key considerations/features of copyright and intellectual property issues and legislation, including ownership, and their relevance to the design industry</li> <li>● sources of information related to copyright, moral rights and intellectual property issues including ownership, relevant to the product design industry</li> <li>● range, uses and function of electrical, mechanical, and/or digital devices in relation to product design systems</li> <li>● operation and structure of mechanical devices e.g. levers, gears, cranks, pulleys, pistons, cams</li> <li>● operation and structure of electrical devices e.g. motors, magnets, solenoids, lights, switches</li> <li>● interaction and operation between physical and digital product systems</li> <li>● operation of digital systems and interaction structure with physical products e.g. buttons, switches</li> <li>● interactions with software and or digital platforms.</li> <li>● industry and design standards relevant to Product Design</li> <li>● regulatory and legislative requirements relevant to product design and production of the design</li> <li>● production processes as they apply to product design</li> <li>● plans, drawings and specifications used in product design, including current industry software and hardware to produce those</li> <li>● workplace safety requirements and legislation in relation product design, production processes and when producing prototypes which have electrical features.</li> <li>● facilities, tools, techniques and materials required to produce prototypes or proof of concepts.</li> </ul>
<p><b>Assessment Conditions</b></p>	<p>Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.</p> <p>The assessment environment must include access to:</p> <ul style="list-style-type: none"> <li>● a suitable workspace</li> <li>● product design brief</li> <li>● references and resources relevant to product design</li> <li>● equipment, tools and materials used to design and produce a product prototype or proof of concept</li> <li>● sources of information regarding mechanical, electrical and/or digital components</li> <li>● appropriate presentation environment and resources</li> </ul>

- individuals and team members with whom the learner can interact to support design development and realisation.

**Assessor requirements**

Assessors of this unit must satisfy the requirements for assessors in applicable Vocational Educational and Training legislation, frameworks and/or standards.

No specialist vocational competency requirements for assessors apply to this unit.

